the character and extent of industrial development in different cities has greatly altered the quality of the air we breathe. KLOTZ (*Amer. Jour Public Health*, 1914, iv, 887) has taken advantage of the conditions of the Pittsburgh atmosphere, and in association with other studies upon the smoke problem, has made observations upon the accumulation of carbon in the tissues of the lung. By his observations no support is given to intestinal absorption of carbon as an important factor in pulmonary anthracosis. Furthermore, the presence of carbon or soot in the mouth does not lead to its deposit in the tonsils or absorption by the associated lymphatic system. Similarly the trachea and bronchi do not appear to have the power of disposing of the pigment other than incorporating it in a mucous secretion, which subsequently reaches the mouth. Owing to the system of angular and moist channels of the upper respiratory passages the greater amount of carbon is caught before reaching the lung. That which reaches the air-sacs is picked up by living phagocytes and carried into the lymphatic channels of the lobules. The larger channels in the periphery of the lobules soon show the presence of the pigment by the sharp black lines, which may be observed on the lung surface of young children. Some of the phagocytic cells carry their pigment burden to the lymph glands at the hilus, others plug the channels or lead to nodular accumulations in the ampullary portions of junction points. Obviously the amount of pigment in any lung is dependent upon the quantity inhaled, or better upon the quantity of carbon in the atmosphere of one's daily life. With the larger quantities of pigment scattered through the lung substance there is a distinct loss of elasticity of the tissue. This physical change is associated with a structural alteration, in which the most marked condition is the fibrosis about the anthracotic deposit. These fibroses are, at times, nodular or again diffuse. The air spaces are encroached upon, with the result that the less involved areas respond in compensatory emphysema. The more marked anthracotic deposit seriously impairs the function of the lung. Pleural adhesions are not developed as a result of the deposit. An interesting point was observed that the cells active in the phagocytosis of the carbon migrated to areas of chronic inflammation, particularly tuberculosis, and formed a pigmented wall about such areas. The fibrosis which accompanied these carbon deposits tended further to encapsulate the tuberculous foci. Acute inflammation (pneumonia) was not assisted in this manner, but was rather impeded in its favorable outcome during the stage of resolution. Estimates of the total carbon content of the lung were made in which quantities varying from 1.2 to 5.3 grams were obtained in individual lungs of Pittsburgh inhabitants while 0.14 and 0.4 grams were obtained in two lungs from residents in Ann Arbor, Michigan. The fact appears to be clearly borne home to us that a variable anthracosis and its sequelæ affects city dwellers according to the amount of smoke pollution in their respective communities.

Rabies.—JAMES J. CUMMING (*Journal of Infectious Diseases*, January, 1914, xiv, No. 1, p. 33) presents the results of his studies on fixed virus with special reference to the action of disinfectants, the effect of heat, passage through Berkefeld filters, infectivity; also the effect of dialysis and exposure of the virus to peritoneal fluid *in vivo*. Cumming furthermore determined the minimum lethal dose of the virus and gives the results of immunity tests on sets of animals which had been vaccinated by various methods of antirabic treatment, and finally reports the results of a new method which he designates that of dialysis.

The experiments show that a 1 per cent. solution of phenol does not destroy the virus by an exposure of six hours, whereas a 2 per cent. solution kills it in less than twenty-four hours. These experiments were made by exposing the virus to the disinfectant in a test-tube, and should, therefore, not be translated to the treatment of the wound in the animal. The specific disinfecting action of formaldehyde is shown by the fact that the virulence of the virus (again *in vitro*) is lost when exposed for two hours to an 0.08 per cent. solution. As a result of this finding Cumming advises the use of formalin upon all wounds made by animals suspected of being rabid. The actual effect of formalin upon such wounds in animals was, however, not tested.

The virus is readily destroyed by heat—in twenty minutes at an exposure of 47° C., and in less than two minutes at 100° C. In thick homogeneous suspensions the virus may be made to pass through a Berkefeld filter.

By the intracranial method of injecting the virus the mortality is 100 per cent. Next in order as to mortality is the intramuscular route —50 per cent. Intraperitoneal injections give a death rate of 15 per cent., while by the intravenous method the animal rarely dies. It was found that when the virus in collodion sacs was exposed to the peritoneal fluid its virulence was lost in from three to six hours. An interesting series of experiments was conducted to show the effect of dialyzing a fresh standard suspension against running distilled water. Under these circumstances the virus loses its virulence and it was found that the important factors in effecting the destruction of the virus were the thickness of the collodion sac, the percentage of rabid brain in suspension, and the rate of flow of the distilled water.

The minimum lethal dose of the fixed virus by the intracranial method of injection was found to be 0.5 c.c. of a 1 to 25,000 suspension in physiological salt solution. In the tabulations given it is noted that by the Högyes method of treatment the immunity conferred will protect against about 1.5 minimum lethal doses. The Pasteur treatment protects against about 2 minimum lethal doses of the fixed virus, while the vaccine prepared by the dialyzed method will protect against as much as 8 minimum lethal doses. Furthermore, the vaccine prepared by the dialyzed method will not produce the disease when injected intracranially. Cumming, therefore, claims that the subcutaneous injections of the dialyzed vaccine are entirely safe as a prophylactic measure and they confer a high degree of immunity. Over 800 persons bitten by animals suspected of having rabies have been treated by this new method at the Pasteur Institute at Ann Arbor, Michigan. In this series no cases of rabies developed.

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